

R·I·T Rochester Institute of Technology

FINAL REPORT

OF

THE COMMITTEE ON TEACHING AND LEARNING

**COLLEGE OF LIBERAL ARTS
ROCHESTER INSTITUTE OF TECHNOLOGY**

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The Committee on Teaching and Learning

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EXECUTIVE SUMMARY

This report describes current teaching and learning practices in the College of Liberal Arts (CLA) and proposes new arrangements for teaching and learning in the College. To provide points of comparison and to expand on the topic, the report also includes relevant information about teaching and learning in other colleges at RIT and at four other institutions. The report is the result of nine months of study by the Committee on Teaching and Learning, which was formed by the Dean of the College in September 1999.

The information for this study came from a review of relevant literature; a pencil-and-paper survey of Liberal Arts faculty, followed by four focus groups with a total of 13 faculty members; meetings with the Deans of all RIT Colleges, and with several senior administrators; focus groups with faculty from the Colleges of Business, Science, Applied Science and Technology (CAST), and Engineering, and the National Technical Institute for the Deaf (NTID); a focus group with Liberal Arts students; and discussions with faculty, students, and administrators during campus visits at Rensselaer Polytechnic Institute, Middlebury College, and Carnegie Mellon University, as well as telephone interviews with faculty and administrators at Cornell University. Data on faculty workloads in other colleges were supplied by Associate Dean Glenn Kist, drawing on a report he prepared for Dean William Daniels in 1998, and by John Whitely, Director of Institutional Research and Policy Studies.

The major conclusions from this study include the following:

- CLA faculty successfully employ a variety of teaching methods, including the use of information technology for instruction, although to a limited extent. Many classrooms are without network connections or appropriate projection equipment, technical assistance is spotty, and training is generally ad hoc and is not linked to pedagogy. Faculty would like to explore opportunities for making information technology a part of their courses.
- CLA faculty would like to participate in more team teaching; this practice is not often encouraged or supported. On campuses visited by the committee, team teaching is encouraged and supported. Faculty also would value the opportunity to teach seminars. On those campuses visited by the committee, faculty are experimenting with various modes of active learning, such as the "studio" model popular at RPI. Also popular elsewhere are interdisciplinary courses, minors, and majors.
- Teaching loads are heavy: nine courses per year in classes of 32 to 40 students in most cases.
- Faculty workloads vary among RIT colleges; however, arguably no faculty have heavier teaching responsibilities than those in CLA. The faculty on campuses visited by the committee, particularly faculty in the liberal arts, grapple with challenges similar to those we face at RIT, although nowhere were faculty workloads as heavy.

- No college or departmental initiatives are aimed at teacher development; however, college and Institute support is available for course development. Our college, as well as RIT, lacks a teaching center. Teaching centers were present and prominent on each of the campuses visited by the committee.
- Course scheduling is centralized and rigid, with little to no input from faculty. In general, on those campuses visited by the committee, departments enjoy much independence in assigning teaching loads and scheduling courses.
- CLA faculty support a return to three hours of class meeting time per week.
- Faculty and students are dissatisfied with the physical spaces in which we teach and learn. We have an insufficient number of small spaces appropriate for seminars, and an insufficient number of spaces appropriate for large lectures. We lack common spaces where students and faculty can gather. Those campuses visited by the committee are endeavoring, with varying degrees of success, to provide spaces that help build a campus community and culture.
- The biggest impediments to classroom innovation are faculty workloads, lack of time, inflexible physical space, and large numbers of students. Our colleagues from other colleges at RIT agree: burdened with myriad responsibilities -- research, committee work, large numbers of students -- they also feel hard pressed to develop and sustain creative teaching methods consistently.
- Students -- at RIT and on campuses visited by the committee -- value face-to-face time with faculty and oppose activities, including online discussions, that take away from real-time class interaction. Also, most students are not in favor of large classes.
- Faculty, at RIT and elsewhere, see a need for more research into the best uses of information technology for teaching and learning. Many faculty and students alike are cautious and even skeptical about the value of information technology in education, although everyone agrees that information technology will play an ever-larger role in teaching and learning.

Recommendations

Teaching Methods and Strategies

Recommendation 1: Make any team-teaching assignment a full-course load for each faculty member involved, without necessarily increasing course size. **Implementation: Immediate.**

Recommendation 2: Establish a working group to explore the development of a student peer tutoring system, in particular to assist faculty in conducting classes as combinations of large lectures and recitations. **Implementation: Immediate.**

Recommendation 3: Reduce the standard teaching load for all full-time faculty from three to two courses per term. **Implementation: 2001-2002.**

Recommendation 4: Make one course per year per faculty member regularly exchangeable for other commitments, specifically sustained scholarship and/or significant service. **Implementation: 2001-2002.**

Recommendation 5: Increase the full-time faculty by one-third. **Implementation: Begin immediately.**

Recommendation 6: Enable departments to make decisions about scheduling and released time, and allocate funds for these purposes directly to departments. **Implementation: 2001-2002; however, this could be phased in on a case-by-case basis immediately.**

Information and Classroom Technology

Recommendation 1: Establish a Committee on Information Technology and Pedagogy, which would work closely with and under the auspices of the proposed Center for Teaching and Learning (see Professional Development, below). **Implementation: Immediate.**

Recommendation 2: Designate an individual -- presumably CLA's new PC Systems Administrator-- to assist faculty in creating and maintaining individual Web pages for each faculty member. **Implementation: Immediate.**

Recommendation 3: Encourage, enable and support the establishment of course-related Web pages, electronic bulletin boards for asynchronous student/faculty and student/student interaction, and e-mail distribution lists. **Implementation: Immediate.**

Recommendation 4: Make regular software training, as well as prompt support, an expectation. **Implementation: Immediate.**

Recommendation 5: Make every CLA classroom a smart classroom, with uniformity among all teaching spaces. **Implementation: Phased in beginning immediately.**

Professional Development and Evaluation

Recommendation 1: Establish a College of Liberal Arts Center for Teaching and Learning, and seek grants to support it. **Implementation: Immediately form a committee to draw up a timeline for the establishment of such a center.**

Recommendation 2: Provide every faculty member one quarter off every sixth year to work on course or program development, teaching, and/or pedagogy. **Implementation: 2001-2002.**

Recommendation 3: Establish a department-based system of peer advisement for teaching. **Implementation: Immediately refer to department chairs for discussion.**

Recommendation 4: Charge a committee to review and, if appropriate, revise the student course evaluation form. Change the student course evaluation form to provide an explicit opportunity for students to comment on the use of any out-of-class activities. **Implementation: Immediate.**

Recommendation 5: For each new faculty member, assign an experienced teacher to act as an adviser and colleague in matters related to teaching and other professional matters. **Implementation: Immediate.**

Scheduling

Recommendation 1: Make three hours per week of class time the norm, without excluding four-hour-per-week classes. **Implementation: Bring before the faculty immediately for discussion and vote, for implementation 2001-2002.**

Recommendation 2: Make scheduling decisions, excepting those for meeting times, a departmental responsibility. **Implementation: 2001-2002.**

Recommendation 3: Stop the practice of scheduling classes to meet weekly in a single four-hour block, except when specifically requested by the faculty member. **Implementation: 2001-2001.**

Recommendation 4: Create greater cooperation and collaboration with other colleges to secure appropriate teaching spaces for our classes. **Implementation: Immediate.**

Recommendation 5: Advocate for a change to an academic calendar based on semesters. **Implementation: Immediate.**

Physical Space

Recommendation 1: Develop a strategic plan to identify a new building as a top priority, to be designed in cooperation with the Liberal Arts faculty, with a completion date in 2005. Also, establish a faculty working group to begin a discussion of design possibilities. **Implementation: Immediate.**

Recommendation 2: Upgrade and renovate our current teaching spaces. **Implementation: Immediate.**

Introduction

"Decades of research and reform," writes Tracy Kidder in Among Schoolchildren, "have not altered the fundamental facts of teaching." The profession comes down to this: an adult alone with a group of students. Kidder's comments are relevant to discussions of teaching on any level. When we work as teachers, we usually work alone, that is, without other teachers in the classroom with us. This relative solitude often leads us into doubt. Are our methods effective? Are the students engaged? How much learning is really taking place? The answers to these questions, which teachers continually ask themselves, are not easy to come by. And the questions themselves are becoming more complicated as information technology continues its extraordinary growth within our profession and as a social force at large. Once concerned primarily with how students learn, we have become preoccupied with where and when they learn, as well. In fact, college teaching and learning are changing in a variety of ways and for a variety of complex reasons. For example, compared to undergraduates twenty years ago, students today are older, more likely to hold down jobs, and more consumerist -- demanding a return on their (or their parents') investment. And educators are under increasing pressure to make the educational process more productive, to do more with less.

Moreover, although teaching is the activity most readily attached to college professors in the popular imagination, arguably it is the one part of our jobs for which we receive the least formal preparation and, some might say, the fewest extrinsic rewards and opportunities for improvement. And we -- the professors themselves -- are not always adept at defining precisely what good teaching is. Descriptions of effective classroom practice too often focus on the dynamism and charisma of the teacher rather than on methodology and the quality of the interaction. Perhaps this is altogether understandable. As Parker J. Palmer writes in The Courage to Teach, "*good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher*" (1998, p. 10, emphasis in the original). Still, because we do value good teaching, recognize its centrality to the educational enterprise, and acknowledge a growing concern about the quality of teaching on the undergraduate level, we are prompted to investigate student and faculty perspectives on the following questions:

- What teaching methods and strategies best encourage and facilitate learning?
- What do students and faculty consider to be the assignments and exercises that work best?
- What are the impediments to learning?
- What kinds of training and support help most?
- What space and scheduling arrangements best facilitate effective teaching and learning?
- What role should information technology play?
- What other supports do faculty need to be good teachers, and students need to be good learners?

The report that follows, which distills nine months of study by the Committee on Teaching and Learning, is an attempt to answer these questions as they apply to the College of Liberal Arts (CLA). Most importantly, the report proposes new arrangements for teaching and learning in our College. The committee's work was grounded in two simple assumptions, that many CLA fac-

ulty are dedicated teachers, and much good teaching takes place in our classrooms. Our many discussions with colleagues bore out these notions. Yet as a group we in the College of Liberal Arts are dissatisfied with the status quo. Our feelings are nearly identical to those expressed by a faculty member in the College of Science, who, when asked to comment on the impediments to effective teaching in her college, said, "Too many classes, too many committees, no built-in time for innovation."

We are committed to establishing a learning community, a joint intellectual endeavor of faculty and students. The recommendations contained in this report are intended to foster such a community.

A note on the text of the report...

Our report has a narrative logic. We introduce ourselves and outline our work (Section 1: The Committee, Its Charge, and An Outline of Its Work for Academic Year 1999-2000); review our findings (Section 2: A Summary of What the Committee Learned); summarize the status quo (Section 3: The Current State of Teaching and Learning in the College of Liberal Arts); propose changes (Section 4: Recommendations); and look to the future (Section 5: Conclusion). We appreciate the temptation to leap immediately to the penultimate section, but we ask that you read the entire report in order to understand the facts, impressions, and experiences that brought us to our recommendations.

Section 1: The Committee, Its Charge, and An Outline of Its Work for Academic Year 1999-2000

The Dean of the College of Liberal Arts formed the Committee on Teaching and Learning in September 1999. In a letter (Oct. 4) to the faculty of the College announcing the committee's formation, Dean Andrew Moore wrote that in his introductory conversations with members of the College, many faculty had "indicated that in the College of Liberal Arts the teaching experiences of faculty and learning environment for students fall short of our aspirations. Faculty often feel pressed by time and facility constraints and students do not always have opportunities to engage in dynamic intellectual interactions with their instructors. The problems are deep-seated and will require a special effort to resolve." The Dean formed the Committee on Teaching and Learning in response to these concerns.

The members of the committee are Tim Engström (Philosophy), Dave Neumann (Professional & Technical Communication), Pat Scanlon (Professional & Technical Communication -- Chair), Murlí Sinha (Sociology/Anthropology), Pam Viggiani (Social Work), and Wilma Wierenga (Foreign Languages). The charge of the committee (Appendix A) was, in brief, to review the modes of teaching and student learning in the College of Liberal Arts; to identify and support the best examples of faculty instruction and student learning experiences in the College; and to propose new arrangements for teaching and learning. To accomplish these things, the committee did the following:

Reviewed relevant literature on teaching and learning on the college level as well as in primary and secondary schools.

Conducted a pencil-and-paper survey of Liberal Arts faculty (Appendix B), followed by four focus groups with a total of 13 faculty members. A summary of the responses and the focus group discussions is included in Section 2

Met with the Deans of each of the Colleges of RIT to learn their thoughts about teaching in their respective Colleges, and to ask them to identify outstanding teachers.

Using the Deans' recommendations, conducted focus groups with faculty from the Colleges of Business, Science, Applied Science and Technology (CAST), and Engineering, and the National Technical Institute for the Deaf (NTID). A summary of the focus group discussions is included in Section 2.

Held one focus group with Liberal Arts students -- see Section 2 for a summary.

As a committee, met with: Associate Provost Mayberry; Ann Howard (Science, Technology and Society) and Jim Maddison (Office of Sponsored Programs), regarding grants for experiential learning, and about experiential learning generally; and Dean Moore. Pat Scanlon met with Linda Kuk, Vice President for Student Affairs, and with Robin Diana, Coordinator for the First Year Experience Program. Finally, committee members invited and received input from our colleagues within the College of Liberal Arts -- twice during College meetings and informally throughout the year -- and from across the campus.

Met with faculty, students, and administrators while visiting the campuses of Rensselaer Polytechnic Institute (Troy NY), Middlebury College (Middlebury VT), and Carnegie Mellon University (Pittsburgh PA). A planned trip to Cornell University (Ithaca NY) was postponed when plans at Cornell changed; a telephone interview was conducted in place of a visit. An overview of these campus visits and of the Cornell interview is included in Section 2.

Met weekly, with some exceptions, throughout the year, and kept in continual contact via e-mail and in face-to-face conversations, for the purposes of discussion, analysis, and writing this report.

Section 2: A Summary of What the Committee Learned

Our Liberal Arts Colleagues

During fall quarter 1999, we conducted a pencil-and-paper survey of CLA faculty, followed by four focus groups with a total of 13 faculty. The survey (see Appendix B) was distributed to all full-time faculty; 51 completed surveys were returned. These surveys represent more than half the full-time faculty. Following is a summary of the survey results and of the focus group discussions. A more complete discussion is included in the committee's Interim Report, January 28, 2000 (Appendix C). The following also reflects faculty comments, prompted by the Interim Report, made during a College of Liberal Arts meeting on March 14, 2000.

Effective teaching methods and strategies: CLA faculty employ a wide variety of teaching methods, including lecture/discussion, small group discussions and projects, debates, oral presentations, and various experiential learning activities. Some see team teaching as an effective classroom strategy. And a small number indicated that Web-based resources have become significant elements in their classes. Many CLA faculty are innovative teachers; however, a tension exists between, on the one hand, class sizes and teaching loads, and on the other, instructors' desire to provide students with individual instruction and attention.

Effective assignments and/or activities: CLA faculty often use assignments that require students to take an active role: debates, a variety of writing exercises – autobiographical to analytic -- and games, for example. Out-of-class assignments include service, gallery visits, field trips, experiments, and research projects. Some faculty employ online testing, Web based and CD-ROM exercises, and e-mail conferencing.

Desired methods and strategies and impediments to employing them: Faculty would like to teach in teams more often, and they would like to teach more seminars in actual seminar rooms. The biggest impediments to classroom innovation are faculty workloads, lack of time, inflexible physical space, and large numbers of students.

Physical space, scheduling, resources, and support to facilitate teaching: Many faculty emphasized the poor condition of teaching spaces. Faculty feel they have outgrown and worn out their buildings (that is, the College of Liberal Arts building and the greater part of the third floor of Eastman). They need a building designed to foster departmental and disciplinary identities, cohesiveness, collegiality, and faculty/student and student/student interaction. They need flexibility in scheduling, space, and teaching methods. Finally, they need more access to and training in the use of information technology resources for teaching, as well as more smart classrooms and more and better audiovisual and other instructional technology support.

General comments: Faculty aver that teaching loads are inordinately heavy in comparison to other colleges at RIT (however, see the discussion of such comparisons in the following section) and to our peer institutions, especially given the increased emphasis on scholarly production. Many faculty have recommended that CLA return to a schedule of three contact hours per week

per class, noting that this is a more humane schedule for all concerned and that it would facilitate team teaching and other collaborative work. Faculty also seek new initiatives to support scholarship while supporting work in the classroom.

Faculty find much that is problematic about teaching spaces. Complaints about classrooms include everything from broken blinds and poor heating to unavailability of appropriate classroom technology.

In addition, many faculty see a need for increased faculty interaction regarding teaching and learning, including exchanges of ideas with colleagues on other campuses. Also, we should revisit our system of teaching evaluation and perhaps institute classroom visits by colleagues.

From Our Colleagues in Other Colleges at RIT

The committee held two focus groups with faculty from other colleges at RIT. Participants were identified by their Deans as innovative and exemplary teachers. One group included faculty from Engineering and CAST; the other consisted of faculty from Science, Business, and NTID.

Before summarizing those discussions, let us review data on faculty workloads in other colleges. We gathered this information from Associate Dean Glenn Kist, from a report he prepared for Dean William Daniels in 1998, and from John Whitely, Director of Institutional Research and Policy Studies. Elsewhere in the report, comparable data are provided for the College of Liberal Arts (Section 3: The Current State of Teaching and Learning in the College of Liberal Arts) as well as for Rensselaer Polytechnic Institute, Middlebury College, and Carnegie Mellon University (see the following section, From Our Colleagues on Other Campuses).

A caveat: Making comparisons of faculty workloads among the colleges at RIT is problematic. This is particularly so when discussing class sizes. To take a more or less random example, the work involved in teaching a class in Biology, with lab, to 16 students – the average size of the 60 sections offered in fall 1999 – and the experience of teaching Introduction to Literature to 34 students, also the average class size that quarter, cannot be compared with reference to numbers alone. That is to say that average class sizes by themselves are not particularly descriptive of the work involved for the faculty member. Average class sizes in NTID, for instance, are quite small, easily the smallest, on average, at RIT, but teaching assignments include significant amounts of time outside of class for tutoring and consultation. Therefore, in the summary that follows we focus on the number of courses or contact hours assigned each faculty member, either by quarter or year. Generalizations about class sizes, based on data from fall 1999, are included where appropriate.

Faculty Workloads at Other RIT Colleges

College of Business: The standard teaching load is seven courses per year. Average class sizes range from 24 to 30 students.

College of Applied Science and Technology: Teaching loads vary among units. However, the following are typical assignments. For those teaching standard undergraduate lecture courses, the load is nine courses per year. For those with significant laboratory involvement, the load is 14 contact hours per week -- typically six hours of lecture and eight in the lab. For those with significant graduate teaching or research responsibilities, the normal teaching load is seven courses per year. Each faculty member has some student advising responsibility. Average class sizes vary greatly.

College of Imaging Arts and Sciences: Standard is 10 to 14 contact hours per week, with a minimum of 34 to 45 students. Many courses in CIAS include studio work. Average class sizes vary; however, it is noteworthy that classes in Art History average 44 students.

Engineering: A typical load is six to eight courses per year depending on research commitments and grant support. Computer Engineering classes average 30 students; other classes in this college average approximately 20 students.

National Technical Institute for the Deaf: Loads vary depending on the types of courses being taught; however, faculty are assigned 20 to 22 student contact hours per week. These contact hours include consultation, tutoring, and general support outside of class. Time in class is 14 to 16 contact hours per week. The majority of classes have fewer than 10 students.

Science: For faculty teaching lectures only, the average teaching load is 12 hours per week; for those who also teach laboratory courses, the average is 12 to 15 hours. The only large lecture offered at RIT in fall 1999 was one section of Biology, with 73 students. Most classes in this college include approximately 20 to 30 students.

Effective teaching methods and strategies, and assignments and/or activities: Comments by faculty in these groups mirrored those made by CLA faculty. These teachers use a variety of exercises and assignments, often in an attempt to promote active learning. (One colleague noted, however, that experiential learning must not just be "entertainment learning" -- merely glitzy and trendy.) Faculty emphasized the difficulty of designing assignments appropriate to a variety of learning styles, that is, that reflect awareness of multiple intelligences. In this regard, one colleague noted that she strived to give each student an opportunity to "shine." All participants emphasized the critical importance of assisting students in determining how to find information on their own. A Mathematics professor noted with chagrin that RIT students work best when procedures are handed to them, and that they have difficulty with "conceptual thinking."

A number of our colleagues expressed impatience with calls for increased use of information technology in the classroom. One faculty member -- from the Information Technology program, no less -- stated flatly that gratuitous use of technology is wrong. Another, echoing a sentiment

we heard expressed here and elsewhere, by faculty and students alike, emphasized that technology is only a tool.

Impediments to effective teaching: Several faculty complained of workloads too heavy to allow for consistent creativity in the classroom. Another frequent concern was over technology in the classroom, specifically that it is generally poor and that technology support is understaffed. As one colleague put it, "Too many glitches can cause professors to give up."

Some faculty argued in favor of team teaching within as well as across colleges. Faculty from CAST pointed out that team teaching in their college had been phased out because of problems apportioning hours of responsibility to individual faculty. All agree that, while attractive in theory, in practice team teaching is treated as if it were blocked by many logistical impediments.

Physical space and scheduling: Our colleagues also are concerned about physical space. They expressed a need for more flexible space, for classrooms amenable to working in groups. Some pointed to the new College of Science addition as a model for creating student meeting spaces. There appears to be nearly universal dissatisfaction with the inflexibility of teaching schedules.

General comments: Most noteworthy in our discussions with colleagues from other colleges at RIT was the sense that often we seemed to be listening to ourselves. Burdened with myriad responsibilities -- research, committee work, large numbers of students -- they feel hard pressed to develop and sustain creative teaching methods consistently. Insufficient faculty development time and resources were cited most often as impediments to effective teaching.

From Our Colleagues on Other Campuses

Members of the committee visited three campuses: Rensselaer Polytechnic Institute, Middlebury College, and Carnegie Mellon University. A trip to Cornell University was postponed when plans there changed; a telephone interview was conducted in its place. We selected RPI and Carnegie Mellon because they are principally technical universities with much in common with RIT. We also wished to visit a small liberal arts college, and we had contacts at Middlebury. Simple proximity played a role in our selections, as well.

Committee members spent a very full day on each of the three campuses. We met with administrators, faculty, and students; sat in on classes; visited computing centers and educational technology centers; and spoke with as many people as were willing to talk to us. The following summaries provide an overview of what we learned during each of our visits. A summary of the Cornell interview is included, as well.

Rensselaer Polytechnic Institute
HYPERLINK "<http://www.rpi.edu/>" <http://www.rpi.edu/>
March 30, 2000

Teaching

Course Load

The standard load at RPI is three courses per semester, six courses per year; this is generally translated, however, into two courses per semester plus one course equivalent for research/service responsibilities.

Intro courses tend to be capped at around 30-35 students. RPI considers an optimal class size to be around 15.

They have shifted recently from a five-course/three-credit-per-course student load per semester to a four-course/four-credit-per-course system. This has encouraged more flexibility -- e.g., dual majors, free electives and minors.

Pedagogy: Team teaching is encouraged; it counts as one course for each faculty participant. RPI has increased its use of the "studio" model of classroom/teaching, more so in Math, for example, than in the Humanities. This encourages more active learning, tends to increase retention, and improves contact between the instructor(s) and students. In order to support this initiative, RPI provides training workshops for faculty. Although they are still at an early stage in their own self-study, it is clear that this teaching style takes more up front time to organize successfully than the traditional class/lecture orientation.

Departments

It is, in general, the departments' responsibility to determine how an individual department member will balance teaching load, class size, and released time for research and service. The quasi-independent role of departments (and their chairs) in this regard seemed universal and widely supported. RPI also employs an incentive-based budgeting process that rewards departments for credit hours generated. There is, however, no clear consensus regarding the consequences -- good or bad -- of this process.

Evaluation: For tenure evaluation, we were told that the weighting is as follows: 40% -- teaching (which is evaluated through an external agency on the basis of a standardized form, which gives some useful comparative data but is not geared toward registering potentially unique aspects of RPI; this process was not well regarded by the faculty we spoke with); 40% -- research; and 20% -- service.

Technology

The most universal and, perhaps, far-reaching initiative at RPI is its mandatory laptop purchase program for all first-year students. Although the jury is still out as to the consequences of this program, it appears to be good for courses that require team projects where students work together, both in real time and asynchronously. In connection with Web-based course tools, students benefit from being able to engage with simulations of complex systems -- e.g., in biology and chemistry. Laptops can, however, also function as screens between students and faculty and/or distractions from otherwise good interpersonal interaction. We viewed an economics class in which this was the case: students responding to e-mails and surfing the Web, for example.

Many students (e.g., in Philosophy) are relieved, however, to have classes that do not "integrate" technology into the classroom experience. The faculty were divided about the implications of how technology might ultimately impact teaching and learning.

Distance Learning concentrates on outside client-based training and masters level degree programs. These are provided largely to GM and IBM. DL is oriented neither toward the general student body nor to deliver the general curriculum. DL courses clearly place extra demands on the faculty who develop and provide them. It is estimated that they demand two to three times more work. With regard to compensation, therefore, a DL course of 50 students is counted as two courses. The general profile of DL is to provide MS or professional certificate programs, which entail no dissertation, for corporate clients. The primary delivery technology appears to be video-based.

In general, it is evident that RPI is committed to providing significant resources and staff to support its technological initiatives. We experienced this directly in the Anderson Center for Innovation in Undergraduate Education (for example, when a presenter had difficulty getting his computer started, he phoned for technical assistance; a person came into the room within a minute). This center facilitates RPI's initiatives in developing and supporting interactive and studio classes, and for developing interactive learning modules that students can complete independently and at their own pace. The primary course software is WEBCT.

Space

RPI is in the process of increasing its variety of classroom spaces. This has led to an increase in flexible, studio-style teaching and learning spaces, and an increase in plug-ins for laptop use in instruction and for general student use.

They have even converted the Campus Chapel into a computer center (the committee found the metaphysical implications of this quite provocative).

The life of the campus seems to be reasonably vibrant. The quality of the buildings and spaces, however, is mixed; there is some noticeable renovation activity, and the campus seems, in general, to be in a phase of modest upgrading. Many academic buildings include some informal meeting areas, with a small cafe; and there is a faculty dining hall that is pleasant and used by the faculty.

Curriculum

RPI is attempting to increase the number of students who complete dual majors and interdisciplinary degrees. These degree programs look exciting, and they tend to combine work in both the technical and humanities fields -- e.g., the "minds and machines laboratory."

Culture

Student retention at RPI has, in recent years, become a very high priority; it is now at about 71% -- a significant improvement over previous years. Credit for this improvement is generally attributed to 1) new presidential leadership in, and support for, several retention-related initiatives; 2) a change in curriculum and course load (mentioned above) that permits more flexibility, innovation, dual majors and minors; 3) increased use of studio-based courses with a low student/faculty ratio; 4) increased attention to admissions, especially with regard to high school students who were team captains in sport (at RPI, a predictor of academic success); 5) increased attention to strong intra-mural athletic programs and a Division 1 Hockey Team; 6) increased commitment to improving direct contact between faculty and students -- through office hours, informal meetings, etc.

Middlebury College

HYPERLINK "<http://www.middlebury.edu/>" <http://www.middlebury.edu/>

April 13, 2000

Teaching

Course Load

Middlebury College has two 13-week semesters and one four-week winter session. Students enroll in five courses per semester and one four-week course during January. A standard faculty teaching load over a two-year period is 3-1-2 and 3-0-2. Course reduction is given for significant campus service.

Every six years all faculty are granted non-competitive full-year sabbaticals at 80% salary. It is expected that faculty will pursue their own research and write grants; however, sabbaticals are not contingent upon receiving grants. Twenty percent of the faculty is on leave at any one time.

Four-credit classes meet three hours per week.

Pedagogy

Middlebury College prides itself on being an outstanding teaching college. Both the student body and faculty are small in numbers, which is conducive to building and maintaining a strong learning community. World-renowned artists and speakers regularly visit the campus. These cultural activities help provide opportunities for faculty and students to continue class dialogues beyond the three hours of classroom time.

Team teaching is encouraged and counts as a full course for each professor. Science and social science labs count as a course. Larger classes of 40+ count as two courses. Most courses enroll 15 to 20 students; writing courses are limited to 15 students.

Student writing assistants are used in writing intensive courses. These students are selected by the faculty member and paid as writing tutors by the department. Professors usually do not receive student papers until they have gone through one revision with guidance from the student writing assistant.

New faculty participate in a two-week orientation; the first three days have a significant technology focus.

Departments

Departments at Middlebury College enjoy relative autonomy. But since interdisciplinary degrees, team teaching, double majors, and minors are common, there is considerable cooperation and coordination between departments. There is some disparity between teaching loads based upon class size, lab sections, and other teaching and service arrangements.

Evaluation

The Committee on Reappointment (COR) reviews faculty for tenure and promotion. Classroom visitations, interviews, and examination of teaching materials are evaluated by this committee of senior faculty. The COR has a strong and powerful presence on campus; released time is granted for membership on this committee.

Publications are necessary for promotion, although no quantitative model has been devised.

Teaching effectiveness is paramount at Middlebury College; faculty are aware that without superior teaching evaluations, they will not be granted tenure.

Currently Middlebury College is attempting to significantly integrate technology into the classroom. Uncertainty among faculty regarding how much weight and attention these technology initiatives should receive in their reviews is moving this topic towards the center of campus discussion.

Technology

There is significant support for integrating technology into teaching at Middlebury College. As a foundation, all faculty receive new computers every two to three years. There is considerable computer support on campus, but there is a sense that it is unevenly distributed. About 80% of the computers are PC's, and 20% Macs.

Middlebury College received a five million dollar grant to create their Center for Educational Technology (CET). Located in a renovated early 19-century courthouse, CET supports faculty classroom technology projects. While there is very limited focus on distance learning initiatives, Middlebury College does not view this as a strategic initiative

CET sponsors a month-long workshop for faculty to develop classroom technology (Web sites, CD pressings, PowerPoint presentations, etc.) These workshops occur during the January four-week winter term.

Information Technology Service (ITS) assists faculty with day-to-day technology requests. ITS runs regularly scheduled workshops on software applications, Internet use, e-mail, etc. It is a widely held perception that ITS is understaffed.

Space

Middlebury College has a beautiful campus located in Vermont between the Green Mountains and the Adirondack high peak region. The architecture is varied and teaching spaces are configured in differing sizes and arrangements. While there is still need for more updated and renovated classrooms (including the need for more smart classrooms), recently the college completed construction of Bicentennial Hall. It was built to house programs in the sciences and social sciences and was quickly adopted by students as a gathering place for studying and working on class projects. The building has many different meeting rooms, informal gathering areas, blackboards in open lounge areas, and many other creative uses of space. Electrical outlets and data links abound. Bicentennial Hall should be used as a model for future campus construction; it is an inviting, flexible, utilitarian, and humanistic eco-design that has met with overwhelming approval from Middlebury students and faculty. Ironically, though, this new building has slower Internet connections than many other older buildings on campus.

Faculty have a significant amount of input into their class meeting times and locations. From Middlebury's Web site, faculty can view QuickTime movies of classrooms to help them in selecting the best learning space for their classes (see [HYPERLINK "http://www.middlebury.edu/~its/IT/facilities/munroe/index.html"](http://www.middlebury.edu/~its/IT/facilities/munroe/index.html) <http://www.middlebury.edu/~its/IT/facilities/munroe/index.html> to view rooms in one building, Munroe Hall). This is an ambitious endeavor that does have its share of snafus. In a twist on seniority, untenured faculty have priority in room selection.

Curriculum

Middlebury College confers one undergraduate degree, Bachelor of Arts. It also confers the graduate degrees: Master of Arts, Master of Letters, Master of Science, and Doctor of Modern Languages

Middlebury College enrolls 2200 students in 41 degree programs. It has a number of innovative curriculum designs including joint and double majors, as well as independent scholar, exchange, and study abroad programs. Joint major programs combine portions of two of the disciplines, arranged on an individual basis with the cooperation and approval of the departments concerned. In the double major program students fulfill complete major requirements of two departments. An adviser from each department is required. Independent Scholars are outstanding students with clear educational goals that cannot be fulfilled within the framework of normal departmental requirements. They may plan their own curricular programs with the assistance of a faculty adviser. Middlebury maintains exchange programs with several colleges, including Berea College and St. Mary's College during winter term and Swarthmore College and Spelman College. Most students study abroad during the junior year. Other programs include: Washington Semester Program administered by American University, Williams College-Mystic Seaport Program in American Maritime Studies, and Semester at Woods Hole Marine Biological Laboratory

Culture

Before enrolling at Middlebury College each student must agree to abide by the Honor System. This agreement is a condition of matriculation. Under the Honor System all quizzes, preannounced tests, and final examinations are unproctored, and at the conclusion of the examination the student writes and signs on the examination booklet the following statement: "I have neither given nor received unauthorized aid on this examination."

Middlebury College has been likened to an extended family. The community is small, the culture is engaging, and the natural surroundings are inspiring. As a matter of course and expectation interaction between students and faculty extends beyond the classroom. Independent student research, small class sizes, and a climate of teaching and learning excellence add to this sense of mission and community.

Carnegie Mellon University

HYPERLINK "<http://www.cmu.edu/>" <http://www.cmu.edu/>

April 20, 2000

Teaching

Course Load

CMU's academic calendar is divided into 15-week semesters. Course load varies depending on the designation of faculty as either research or lecturer. Lecturers, who are hired as teaching faculty, teach seven courses a year. They are not required to compete for grant funding although they do have some pressure to publish. Faculty in the Humanities and Social Sciences teach four three-credit-hour courses per year and are involved in securing grant funding, active research, and publication.

Research and writing are accommodated through the use of released time. Therefore, course load may vary greatly among faculty members. However, there is no general leave policy; all leaves are competitive.

Average class size is between 22 and 25 students. Large lectures for introductory courses do exist. These courses include breakout sessions and utilize both graduate and undergraduate teaching assistants to facilitate student learning.

Pedagogy

Teaching is supported and facilitated through the Eberly Center for Teaching Excellence, which offers information, resource guides, and mentoring services to professors and graduate teaching assistants. Participation in the center is completely voluntary.

Research and teaching are integrated at Carnegie Mellon. CMU has an Undergraduate Research Conference that involves approximately 400 students per year. One-half to two-thirds of the faculty are involved in advising and mentoring students who participate in the conference. One-third of the projects completed for the conference are interdisciplinary.

Carnegie Mellon does encourage the use of technology in courses. It is expected that course syllabi will be posted on the Web and that students will have e-mail access to their professors. Approximately two percent of the courses offered at Carnegie Mellon are offered completely on line. Carnegie Mellon also utilizes cognitive tutors. These computer programs allow students to learn at their own pace. Attention is being directed at assessing the effectiveness of these teaching tools.

Departments

CMU is decentralized. Colleges and departments within colleges have a great deal of autonomy in budgetary decisions and in determining teaching loads. Departments and department chairs are charged with balancing teaching responsibilities with responsibilities for scholarship and service. Faculty have choices about where and when they teach.

Evaluation

Departments are responsible for determining the weight teaching is given in tenure review. Teaching is evaluated through the use of end-of-the-semester evaluations that are published at the end of the year. In addition, peer evaluations are utilized. Faculty invite a colleague to visit one of their classes and write up an evaluation based upon the visit. CMU also has an optional mid-semester evaluation that allows professors to alter various components of the course based upon student feedback.

Technology

Carnegie Mellon recently installed a wireless network on campus allowing all students and faculty to connect to the Web from anywhere on campus. Students and faculty seem to enjoy the freedom this system allows and it is utilized often.

Some colleges are moving toward having all students buy laptops upon entering. Thus far, the College of Business is the only college that requires entering students to purchase laptops.

“Cognitive tutors” are utilized in some courses as a supplement to instruction. These tutors – intelligent, interactive software programs -- are intended to help students prepare for class and are utilized outside of classroom time.

Carnegie Mellon recently hired a director for its Office of Technology for Education, which is responsible for providing guidance and assessment for the use of Information Technology in instruction. A strong emphasis is placed on making sure the use of technology in the classroom is properly evaluated for effectiveness. Importance is placed on utilizing technology as a tool in, rather than as a replacement for, instruction. Also, the importance of planning for the long-term maintenance costs of the use of technology in instruction is stressed.

Students and faculty agree that technology has its uses especially as a supplement to classes. However, students are not enthusiastic about the use of technology as a replacement for classroom instruction or for face-to-face interaction with faculty members.

Space

Space is in need of updating and expansion at Carnegie Mellon. It seems that there is a lack of both classroom and office space, in large part the result of CMU's decision to eliminate most large lectures. Additionally, several faculty members commented on the lack of meeting space around campus.

Curriculum

The curriculum model at CMU allows for flexibility. Many students including those we spoke with are able to double and even triple major. In addition, students often choose to pursue multiple minors. This flexibility has been created within demanding majors such as engineering.

The humanities curriculum was developed based on a niche strategy. This strategy is currently being reexamined.

Culture

The environment at Carnegie Mellon is academically intense and competitive. Students have to work hard in order to do well. However, the demanding environment and the ability to thrive in such an environment engender pride in students. Students also feel that a CMU degree will buy them a bright future.

The retention rate at CMU is close to 75 percent. The Division of Student Affairs offers support and programming for students and faculty. It provides liaisons to each of the seven colleges within CMU and promotes better communication between colleges. In addition, the Division of Student Affairs provides out-of-classroom educational programs targeted at students, staff, and faculty.

Cornell University

HYPERLINK "<http://www.cmu.edu/>" <http://www.info.cornell.edu/TextCUHomePage.html>

The following is based on a telephone discussion with several faculty members and administrators at Cornell. Most of the discussion focused on the quality of student learning and teaching strategies, and on the role of electronic technology in instruction. This report reflects current academic thinking about teaching and learning at Cornell. Much of this thinking has taken the form of substantial changes in teaching and learning strategies.

Teaching and Learning Strategies

At Cornell, increasing emphasis on course design and teaching has been on hands-on, inquiry-oriented strategies for learning. They have tried to accomplish this by incorporating the following strategies:

Collaborative Inquiry: Students work as a team, both in the classroom and outside it with the instructor as a coach. This teaching method has increased rapidly in recent years because of the widespread use of computers in classrooms. One faculty member said, "Computer technology, with its capacity for calculation, simulation and facilitating communication both in real time and at the convenience of the correspondents, has changed teaching forever."

Experiential Learning: The instructor helps students learn to process their experience in field settings, put it in a context of general principle – practical, intellectual, and ethical – and rethink theories in light of field experience. One faculty member suggested that direct experience in field settings, with open-ended problems, projects and challenges should be emphasized in all our courses.

Research and Inquiry-based Learning: The instructor’s role at Cornell is changing rapidly from expert to mentor. Often making use of educational technologies, students experience the excitement and usefulness of creating new knowledge. The instructor serves as a guide and mentor, but in many cases is not the expert. However, his/her expertise lies in helping students develop competence in achieving the most important goal of collegiate education: organizing and solving unstructured problems.

Integrative Learning: One faculty member defined integrative learning in the following way: “generating links among previously unconnected issues, approaches and sources of knowledge, and/or contexts of practices.” Such learning is often multidisciplinary. Knowledge, by definition, is multidisciplinary and the instructor serves as an exemplar of the person whose role is to find fresh and instructive connections, helping students learn how to test the intellectual and practical usefulness of the connections they find. Team teaching is generally encouraged at Cornell.

Learning Pedagogy: Of the many teaching techniques, Cornell encourages extensive use of computers in teaching. Functions of computers in today’s teaching:

Offering new forms of learning and new access to information.

Challenging the model of a single knowledgeable person talking to, or controlling interaction among our students.

Facilitating one-to-one interaction and allowing students to do much more on their own, individually, or in groups.

None of the above developments invalidates the importance of the instructor’s greater knowledge and wisdom as a powerful resource for student learning.

From Students

Our committee was able to schedule only one focus group with five CLA students, on Jan. 11, 2000. Following is a summary of that meeting. A more complete discussion is included in the committee's Interim Report (Appendix C).

These students prefer small classes, of 10 to 22 students, with much face-to-face interaction with faculty. They expressed a strong preference for real-time classes as opposed to classes with online components. They remarked often that faculty should not use information technology for its own sake. They do not favor large lectures, but understand the appropriateness of lectures

combined with small recitations for some subjects. These sentiments may not be universal. However, they were reflected in comments by students on each of the campuses visited by the committee -- including Carnegie Mellon (the Most Wired Campus in America, according to Yahoo!).

The CLA students we spoke with prefer that they be made responsible for teaching themselves, as in student presentations. They expressed frustration with large classes and with "busywork." They want rigorous courses placed in meaningful sequences. Again, they were not positive about InfoTech-based assignments unless these were appropriate to the work.

These students were frustrated by our system of scheduling. They were especially critical of classes in four-hour blocks. Also, they commented that assignments of additional work in lieu of class -- that is, extended responsibility -- must be carefully organized and directed. Like CLA faculty, they disparaged our classrooms, which they called "pens" crammed with students. They would like to see many smaller rooms as well as some centralized gathering place, as in the College of Business atrium.

Section 3: The Current State of Teaching and Learning in the College of Liberal Arts

Teaching Methods and Strategies

Faculty in the College employ a variety of teaching methods successfully. The lecture/discussion combination is popular; however, many faculty also use interactive learning: small group discussions and projects, debates, oral presentations, games, role-playing, and service learning projects. Online discussions and Web-based resources are significant elements in some classes. Some faculty participate in team teaching, although this practice is limited.

Faculty teaching loads are relevant to this discussion, as these have an impact on faculty members' ability to create and deploy innovative methods and strategies. The standard teaching load for CLA faculty is three courses per quarter, or nine courses each year. The mix of upper- and lower-division courses varies by professor, particularly between degree program and non-degree program faculty, but a typical year consists of four lower-division courses and five upper-division courses. As most lower-division classes include 40 students and most upper-division classes include 32 students, many CLA faculty can expect to teach approximately 320 students every year.

We conclude this subsection by quoting Barbara B. Lazarus, Associate Provost for Academic Affairs at Carnegie Mellon University. In reference to CLA's increasing emphasis on scholarly production, Associate Provost Lazarus called our teaching load of nine courses per year "unreal-

istic." What we take away from this sentiment, which was expressed in various forms elsewhere during our visits, is that faculty in CLA devote an enormous amount of time and professionalism to managing an unusually heavy work load.

Assignments and Activities

In addition to traditional activities -- specifically, reading and writing -- many faculty prefer assignments that require students to take an active role in learning: debates, personal writing, games, poster sessions, the application of theory in independent research, team projects, service projects, gallery visits, field trips, and experiments. Also, faculty employ information technology-based assignments, including online testing, CD-ROM exercises, e-mail conferencing, and Web-based exercises and searches.

Faculty express a desire to participate in team teaching, although this practice is not often encouraged or supported. Also, many faculty would value the opportunity to teach seminars.

Information and Classroom Technology

RIT recently was ranked 14th among universities and research schools on Yahoo!'s list of "America's 100 Most Wired Colleges 2000." This accolade would make little sense to anyone confined to the College of Liberal Arts. While we have made some progress in the past several years -- we have added two computer classrooms on the third floor of the college, for example -- we still have far to go. Many classrooms are without network connections or appropriate projection equipment. Technical assistance is spotty, at best. The Faculty Institute in Technology (FIT) conferences held in 1998 and 1999 notwithstanding, faculty training in the use of computer applications is generally ad hoc and is not typically linked to pedagogy. (FIT has been canceled for 2000, at least.)

From this point on we make a sharp distinction between Information Technology and Classroom Technology (hence the title for this section). Information Technology includes all the electronic resources, primarily networked computing resources, used to facilitate learning and extend communication both within and outside the classroom, in the latter case often asynchronously. By Classroom Technology we mean the hardware available in the classroom: networked computer hookup, VCR and projection capability, sound hookup, overhead projector, and, yes, blackboard.

Evaluation

Formal evaluation of teaching is conducted by means of student course evaluations, which, along with syllabi and other course materials, become the principal basis for tenure, promotion, and merit reviews concerning teaching. Classroom observations by administrators or colleagues are infrequent.

Professional Development

Faculty can seek support for course development at the college and institute levels, by way of FEAD and Provost Productivity grants, respectively. We are aware of no departmental or CLA initiatives specifically aimed at teacher development, with the possible exception of the Writing & Literature Committee (Language and Literature Department), which hosts workshops for teachers of that new two-quarter core course. The College Writing Director also sponsors annual workshops devoted to writing pedagogy. As noted above, faculty are not formally involved in teacher evaluation, and classroom observations are rare.

Scheduling

Scheduling of classes is a centralized activity handled mostly outside the departments. With few exceptions, classes meet four hours per week according to one of three schedules: twice for one hour and 50 minutes; four times for 50 minutes; or once for three hours and 50 minutes.

Physical Space

Faculty and students alike are very dissatisfied with the physical spaces in which we teach and learn. As one faculty member remarked in our survey, "furniture matters," and our furniture is in a sorry state, indeed. We believe ours to be the least flexible and least educationally conducive space on campus. In short, we have outgrown and worn out our building.

Specifically, we have an insufficient number of small spaces appropriate for seminars, and an insufficient number of spaces appropriate for large lectures. We have no common space where students can gather, as is the case in the Colleges of Business and Science, especially. We even lack small common areas for our degree programs, which as a consequence are hard pressed to establish academic and cultural identities.

Section 4: Recommendations

In each of the following sections, recommendations are numbered consecutively for purposes of reference, only. The order in which recommendations are listed does not reflect any priority or preference on the part of the committee. Each recommendation includes an implementation timeline.

Teaching Methods and Strategies

In developing our recommendations for Methods and Strategies, we were guided by a desire to encourage more teaching interactions that are not lecture based, that move away from the "sage on the stage" and toward the "guide on the side." Faculty often told us they would like opportunities to do more team teaching, to engage students in collaborative inquiry, and to provide opportunities for experiential and service learning. These pedagogical methods and strategies are becoming the norm on many college campuses and were much in evidence at the universities we visited.

Relative to Methods and Strategies, we also must take up teaching loads. We see a pressing need to establish a more flexible system for assigning teaching loads so that faculty are not so overburdened that other commitments, particularly to research, suffer. Scholarship and teaching interpenetrate one another; when one suffers, so does the other. To be effective and innovative teachers, faculty must have sufficient time away from the classroom to keep current in their disciplines. As points of comparison, consider that at RPI faculty teach two courses each semester (the actual load is three; however, nearly every professor is granted one course per semester for scholarship/service); at Carnegie Mellon, humanities faculty teach two courses per semester (some engineering faculty teach one course per year); and at Middlebury, faculty teach three courses in fall, one course every other year during the winter four-week term, and two courses in spring -- they also receive an automatic full-year sabbatical, at 80 percent salary, every sixth year.

Finally, one might expect to see information technology included in this section. However, technology by itself is neither a method nor a strategy, although certainly it is an important part of education today. Please see the following section for a discussion of, and recommendations for, information technology.

Recommendation 1: Make any team-teaching assignment a full-course load for each faculty member involved, without necessarily increasing course size. Team teaching in a variety of class sizes stimulates the professional development of the faculty who are collaborating and increases the level of dialogue and interaction with and among the students -- in fact, a major benefit of team teaching is its dialogic character. At RPI, where a concerted effort is being made to encourage team teaching, this arrangement is taken for granted. **Implementation: Immediate.**

Recommendation 2: Establish a working group to explore the development of a student peer tutoring system, in particular to assist faculty in conducting classes as combinations of large lectures and recitations. Peer tutors could perform some tasks typically assigned to teaching assistants: meeting with students individually, leading group discussions, and perhaps reading and commenting on papers. This is also an enormous educational benefit to the tutors. Middlebury College makes extensive use of peer tutors in its writing-across-the-curriculum program. Each writing-intensive course is assigned a peer tutor, who reads and comments on every paper before that paper reaches the professor. Tutors, who are paid a modest sum -- about \$400 per class -- are selected from among the sophomores and take part in a five-week training session. Seniors and juniors in the program act as mentors to new tutors. Faculty at Middlebury spoke highly of the tutors and of the system generally, which they said relieved them of some burdens so they could focus on other matters related to the classes, while enhancing the student tutors' own facility with the content area. **Implementation: Immediate.**

Recommendation 3: Reduce the standard teaching load for all full-time faculty from three to two courses per term. There are many potential benefits to this change. Among these are: time for more intensive out-of-class interactions with students, student/faculty collaborative research, and mentoring of students in research projects; time for faculty scholarship and professional development to enrich classroom teaching; and a means of attracting and retaining nationally competitive faculty. **Implementation: 2001-2002.**

Recommendation 4: Make one course per year per faculty member regularly exchangeable for other commitments, specifically sustained scholarship and/or significant service. We define "significant service" as a sustained and frequent commitment over two or more quarters. Examples include serving as chair of tenure committee, on the Academic Senate, or on a committee formed to develop a new program. **Implementation: 2001-2002.**

Recommendation 5: Increase the full-time faculty by one-third. To improve learning, we need fully committed full-time faculty. We must reduce our reliance on part-time instructors, who, although excellent teachers, cannot be full members of our community of learning and cannot contribute to ongoing curricular development. **Implementation: Begin immediately.**

Recommendation 6: Enable departments to make decisions about scheduling and released time, and allocate funds for these purposes directly to departments. This level of flexibility would allow departments to respond more quickly and directly to their own needs for program and professional development. **Implementation: 2001-2002; however, this could be phased in on a case-by-case basis immediately.**

Information and Classroom Technology

It bears repeating here that information technology is a tool, although not a neutral one. It cannot and should not drive pedagogy; rather, pedagogical strategies should guide technology

choices. Information technology is not only a significant force within education but also within society at large. IT is capable not only of enhancing what we presently do; it suggests new modes for accomplishing established goals and, equally significant, it also foregrounds new things to do that are suggested by and predicated upon the properties of the technology itself. The potential tension between benefits and unintended transformations of the learning enterprise and environment need careful consideration. For example, IT can significantly enhance the access we have to unprecedented volumes and kinds of information; it can enhance the range of times and places at which we gain this access; it can increase the independence and flexibility of inquirers seeking this information; and it can facilitate an increased range of forms of interaction and communication amongst inquirers. These benefits should be utilized to the fullest extent.

On the other hand, IT may induce some cognitive habits that work against traditional forms of knowledge, scholarship, and engagement. We would not want to encourage the means of achieving a goal to undermine the goal itself. We would not want the easy access to information to diminish the training and labor required to achieve hard-won knowledge. The easy availability of data cannot be a substitute for the theoretical background and discipline required to organize data in academically sound ways and to put data to reliable and responsible uses. Surfing for information is not the same as a search for knowledge and understanding. In effect, IT can induce fragmentary intellectual activity; it tends toward the visual, reductive, and synoptic rather than toward the discursive, complex and context-sensitive pursuit of knowledge. The excitement and opportunity IT provides must be balanced by an awareness of how it can affect a learner who is not otherwise initiated into the discipline of learning.

During our campus visits -- and, incidentally, Carnegie Mellon and RPI ranked first and seventh, respectively, on Yahoo!'s list of "America's 100 Most Wired Colleges 2000" -- we saw information technology used in various ways that worked well as tools in combination with other more traditional forms of teaching. Also, again and again students told us they did not want information technology to replace regular face-to-face interaction with faculty, which they see as among the most critical and attractive features of their college education. Noteworthy on each of the campuses was that faculty were most concerned that they determined which tools worked best for their courses and their students.

Nevertheless, the use of information and classroom technology for teaching and learning has many potential benefits. Moreover, there appears to be a growing expectation among students that information technology will play some role in nearly all of their classes, more perhaps as part of the infrastructure of course communication -- posting syllabi, sending e-mail reminders -- than with regard to teaching and pedagogy. We believe the College of Liberal Arts must become better informed about the possible uses of information technology -- as part of the infrastructure of disseminating information and for teaching and improving pedagogy; improve the technology available in its classrooms; and provide ongoing training and support for its faculty.

Recommendation 1: Establish a Committee on Information Technology and Pedagogy, which would work closely with and under the auspices of the proposed Center for Teaching and Learning (see Professional Development, below). This committee would be responsible for assessing information technology used for teaching, and for making recommendations to the faculty. **Implementation: Immediate.**

Recommendation 2: Designate an individual -- presumably CLA's new PC Systems Administrator-- to assist faculty in creating and maintaining individual Web pages for each faculty member. These Web pages (these were a matter of course at Carnegie Mellon) would include information for each professor's courses, at minimum. **Implementation: Immediate.**

Recommendation 3: Encourage, enable and support the establishment of course-related Web pages, electronic bulletin boards for asynchronous student/faculty and student/student interaction, and e-mail distribution lists. Of course, centralized support for faculty must also be available. **Implementation: Immediate.**

Recommendation 4: Make regular software training, as well as prompt support, an expectation. **Implementation: Immediate.**

Recommendation 5: Make every CLA classroom a smart classroom, with uniformity among all teaching spaces. Classroom technology -- networked computer hookup, projection capability, etc. -- is a must, and increasingly it is an expectation of our students. Classroom technology makes available a wider variety of modes of learning as well as a wealth of off-site materials for instruction during class time. A relevant sidebar: of the campuses we visited, Middlebury's was clearly the least "wired"; however, its infrastructure was the most uniform and sophisticated, yet simple. Every room equipped with a networked computer hookup and VCR projection capability was outfitted with identical controls, a feature much appreciated by the faculty. **Implementation: Phased in beginning immediately.**

Professional Development and Evaluation

As noted earlier, a principal impediment to good teaching is an absence of built-in time and other support for innovation. Therefore,

Recommendation 1: Establish a College of Liberal Arts Center for Teaching and Learning, and seek grants to support it. This center would be directed by a faculty member, with appropriate released time and/or remuneration, who would seek out professional development opportunities (workshops, conferences, symposia, and grant opportunities), organize quarterly teaching workshops, and act as a liaison for the college to other centers. We note here that each of the campuses we visited -- RPI, Middlebury, and Carnegie Mellon -- had a busy and highly visible

teaching center. **Implementation: Immediately form a committee to draw up a timeline for the establishment of such a center.**

Recommendation 2: Provide every faculty member one quarter off every sixth year to work on course or program development, teaching, and/or pedagogy. This arrangement would provide faculty with planned and expected time for pedagogical innovation and course development. Currently available resources to support such work, such as FEAD grants, are not intended to underwrite full-quarter leaves. Also, various Institute grants can conflict with one another, as some are intended for scholarship, some for course development.

Some "product" would be required of the faculty member at the end of that quarter: a design for a new course, for example. Also, faculty would be expected to apply for two or more external grants, with assistance from the College grants officer – who would be charged with helping faculty seek out these grants -- to help cover their released time, although receiving grant money would not be a precondition of released time. (The requirement to apply for grants is one used at Middlebury College when faculty come up for their non-competitive, full-year sabbaticals.) Even when unsuccessful, grant writing can help make faculty more aware of the state of the art and of available resources. **Implementation: 2001-2002.**

Recommendation 3: Establish a department-based system of peer advisement for teaching. This system would include the requirement that each year every faculty member invite a colleague to observe and comment on a class. Class visitors could be asked to write a narrative review of the class, which would serve as the basis for further discussion and could be included in self-evaluation materials for tenure, promotion, and merit, at the reviewed professor's discretion. (This system is used successfully at Carnegie Mellon.) The main purpose of these peer reviews is to foster an ongoing conversation among colleagues about teaching. Also, with a strong departmental focus, peer advisement can be an effective means of identifying and supporting faculty in need of help with teaching. **Implementation: Immediately refer to department chairs for discussion.**

Recommendation 4: Charge a committee to review and, if appropriate, revise the student course evaluation form. This instrument has many strengths; however, many faculty are dissatisfied with it, and it has not been revised in some time. Also, proposed changes in scheduling (see Scheduling, below) would make revisions to the form advisable. Specifically: Change the student course evaluation form to provide an explicit opportunity for students to comment on the use of any out-of-class activities. Evaluation also could include peer classroom visitation and advising (see Professional Development, Recommendation 3, below). By collaborating in this manner, we can help each other do a better job as teachers and do it more consistently. **Implementation: Immediate.**

Recommendation 5: For each new faculty member, assign an experienced teacher to act as an adviser and colleague in matters related to teaching and other professional matters. **Implementation: Immediate.**

Scheduling

Any polite description of faculty dissatisfaction with our system of course scheduling would be an understatement. Our recommendations are intended to create greater flexibility in the system, to put more responsibility for scheduling in the hands of departments, and to create a schedule that fosters teaching innovation.

Recommendation 1: Make three hours per week of class time the norm, without excluding four-hour-per-week classes. Using our current scheduling "grid," classes could be scheduled to meet three hours per week, with one hour designated for monitored out-of-class activities (see Evaluation, above, for a related discussion regarding accountability), or for four hours if appropriate. Course schedules could make clear these scheduling arrangements for students. This system would provide and encourage more flexibility in course design than does our current arrangement, offering more opportunities to schedule experiential or other types of out-of-class learning. In fact, conceivably a course could be scheduled to meet two hours per week, with two hours of other monitored activities. **Implementation: Bring before the faculty immediately for discussion and vote, for implementation 2001-2002.**

Recommendation 2: Make scheduling decisions, excepting those for meeting times, a departmental responsibility. Faculty meeting in their departments are in the best position to decide which courses are best delivered in three hours a week and which in four, which courses could be taught in large lectures and which not, and any other matters related to the scheduling of courses. Moreover, departments will be responsible for monitoring the appropriateness of these scheduling decisions. **Implementation: 2001-2002.**

Recommendation 3: Stop the practice of scheduling classes to meet weekly in a single four-hour block, except when specifically requested by the faculty member. These marathon sessions are exhausting for all involved, almost universally despised, and perhaps educationally unsound. **Implementation: 2001-2001.**

Recommendation 4: Create greater cooperation and collaboration with other colleges to secure appropriate teaching spaces for our classes. **Implementation: Immediate.**

Finally, we must take this opportunity to inject a recommendation regarding our larger scheduling system, whose problems are compounded by an eleven-week quarter calendar. Our visits to other universities -- all of which operate on the semester system -- brought home to us how dissatisfied we, the members of the committee, are with the quarter system, and how this system increases unnecessary administration and bureaucracy, and is an impediment to innovative teaching. The quarter system does not enable as well as a semester system

would the establishing and sustaining of relationships between faculty and students, between students and their peers, and between students and a discipline.

Recommendation 5: Advocate for a change to an academic calendar based on semesters.

Compared to quarters, semesters provide more time for students to establish relationships with faculty and each other, to explore a subject, to read and write about that subject, and to complete extended research projects. Faculty can solicit mid-term feedback with sufficient time to make adjustments to instruction, and students can receive mid-term feedback concerning their progress in the course so that they can make their own adjustments. The pace of semesters reduces stress and gives more time for contemplation. Finally, if a single core course is a student's only opportunity to be initiated into a liberal arts discipline, more time can only help. **Implementation: Immediate.**

Physical Space

Nothing in our self-study was more dismaying than the frequent comments about our teaching facilities: cramped rooms, broken blinds and windows, poor lighting, outdated technology. We have worn out and outgrown our building, which is too small, too inflexible, and too sterile. Architecture as seen from the outside and experienced within conveys the meaning and value of what we do and shapes the configurations within which we learn. In this regard, the CLA building is counterproductive. Therefore,

Recommendation 1: Develop a strategic plan to identify a new building as a top priority, to be designed in cooperation with the Liberal Arts faculty, with a completion date in 2005. Also, establish a faculty working group to begin a discussion of design possibilities. A new building should facilitate teaching flexibility and include a variety of learning environments: several large auditoria, seminar rooms, studio spaces, discipline-dedicated classrooms and labs, and resource rooms. Classrooms would have comfortable and movable furniture arranged in spaces that facilitate multiple uses of instructional technology. Ideally, the building would be designed around disciplinary centers -- for example, a floor on one wing devoted to foreign languages, with dedicated classrooms, labs, etc. Moreover, the building should include public meeting spaces appropriate for informal gathering and learning (for instance, a new building at Middlebury included chalkboards in hallway lounges and these successfully invited regular use as study and learning environments) and private meeting spaces for faculty. Such a building would enhance and even promote educational quality, foster pedagogical flexibility, and effectively represent the meaning of the liberal arts to the Institute and the wider public. **Implementation: Immediate.**

Recommendation 2: Upgrade and renovate our current teaching spaces. We should attempt to squeeze out of our present environment a greater variety of functional spaces: larger lecture halls, more seminar rooms, and more public areas for meeting and learning. We should refurbish the college with comfortable and movable furniture in order to construct a wider variety of learn-

ing environments and to facilitate a wider variety of pedagogical strategies. And we should attend to the aesthetics of our spaces with the inclusion -- on walls and in public areas -- of the kinds of things that suggest the liberal arts: historical documents, photographs, paintings, etc. Finally, we must complete basic repairs and upgrades, including air conditioning everywhere. **Implementation: Immediate.**

Section 5: Conclusion

As the College of Liberal Arts expands its portfolio of academic programs on both the undergraduate and graduate levels, while offering a wide array of courses in the core curriculum, it must also continually improve the quality of its teaching practices and its learning environments. The recommendations included in this report are put forth as first steps toward making our college a place where creative teaching receives the support it requires and the rewards it deserves, where time and resources for pedagogical innovation are readily available, and where physical space enhances and facilitates learning. We are aware, of course, that many of the things we recommend will not come cheaply. The Dean urged us to be bold, and we accepted his challenge. But we are convinced that these proposals are well worth the expense, especially when considering the potential benefits to student learning and retention, and to faculty development and morale.

In addition, our discussions over the past nine months naturally led us to reflect on curriculum, although changes in that area were outside the charge of this committee. Nevertheless, if a good portion of our recommendations are implemented, the alterations in teaching and student learning they would bring about could compel the faculty of the College of Liberal Arts once again to review and revise its curriculum.

Finally, we ask the faculty to carefully consider the Committee on Teaching and Learning's proposals, and hope our recommendations generate much fruitful discussion during the next academic year.

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